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FOREST AREA AND TIMBER VOLUME STATISTICS FOR WESTERN SOUTH DAKOTA, 1974

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ABSTRACT

Presents land area classifications by Forest and Range Resources Evaluation standards and timber volume data by species, forest type, stand-size class, and ownership.

OXFORD: 524.61, 524.3

KEYWORDS: forest surveys (regional), stand volume,
forest area classification

Data presented here are based on comprehensive timber surveys made in South Dakota west of the 103rd meridian from 1971 through 1974 by the South Dakota State Department of Game, Fish, and Parks, Division of Forestry; and the Rocky Mountain Region of the Forest Service in cooperation with the Intermountain Forest and Range Experiment Station.

This Note provides the basic timber resource information in tabular form (tables 1-11) and a brief discussion of the data and terminology. A more comprehensive, descriptive, and analytical report on the timber resources of western South Dakota is being prepared.

FOREST AREA AND OWNERSHIP

Approximately 20 percent of the total land area (fig. 1) in western South Dakota is forested (table 1). Pennington, Custer, and Lawrence Counties (in order) have the highest proportion of land area occupied by productive forests.

Only 1 percent of the productive forest land is reserved from timber cutting. This reserved area includes Mt. Rushmore, Wind Cave, and Jewel Cave National Parks and a small portion of the Black Hills National Forest.

Over 80 percent of the productive nonreserved forest land is publicly owned; the Forest Service administers most of it. Most of the unproductive forest land is privately owned.

¹Respectively, Assistant Resource Analyst, Computer Programmer, and Resource Analyst.

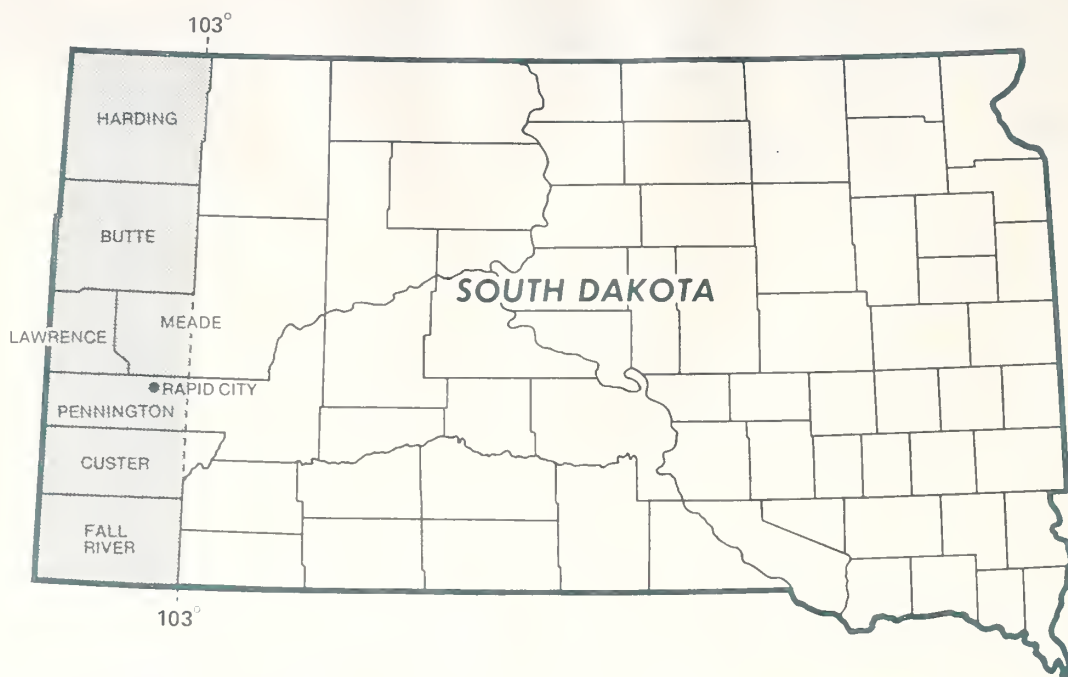


Figure 1.--Location of sample area in western South Dakota.

Table 1.--Land area by county and major land class, western South Dakota, 1974

County	F O R E S T L A N D					Nonforest land ¹	Total land area ²
	Productive		Unproductive		Total		
	Nonreserved	Reserved	Nonreserved	Reserved			
----- Thousand acres ³ -----							
Butte	4.9	--	7.4	--	12.3	1,427.4	1,439.7
Custer ⁴	359.9	10.0	25.9	.2	396.0	483.3	879.3
Fall River	57.3	--	35.8	--	93.1	1,022.5	1,115.6
Harding	16.3	--	4.0	--	20.3	1,696.2	1,716.5
Lawrence	332.7	--	16.9	--	349.6	162.4	512.0
Meade ⁴	61.4	--	9.0	--	70.4	485.8	556.2
Pennington ⁴	406.5	1.1	8.8	1.1	417.5	242.0	659.5
Total	1,239.0	11.1	107.8	1.3	1,359.2	5,519.6	6,878.8

¹Includes 8,300 acres classed as water by Forest and Range Resources Evaluation standards, but defined as land by the Bureau of the Census.

²U.S. Bureau of the Census, land and water area of the United States, 1970.

³Acres can be converted to hectares by dividing acres by 2.471. Cubic feet shown in later tables can be converted to cubic meters by dividing cubic feet by 35.31.

⁴This and later tables include only the portions of these counties west of the 103rd meridian.

VOLUME

The 1.2 million acres of productive forest land (nonreserved) contain about 1.6 billion cubic feet (5.6 billion board feet) of standing timber. Nearly all of the area is the ponderosa pine (*Pinus ponderosa*) type and about two-thirds of it is saw-timber stands.

DATA RELIABILITY

The data presented here all meet or exceed national Forest and Range Resources Evaluation accuracy standards with sampling errors of ± 3 percent per million acres of productive nonreserved forest land area, ± 10 percent per million acres of unproductive nonreserved forest land area, and ± 10 percent per billion cubic feet of growing stock volume. These standards are in terms of one standard error--the 67 percent confidence level. Cells within tables should be used with caution, because some may be based upon small sample sizes, thus resulting in very high sampling errors.

On non-National Forest lands, forest land area and timber volume were estimated from a stratified double sample design using points on resource aerial photography for the primary sample, and ground plots for the secondary sample. Sampling error estimates for the actual area samples (reserved lands excluded) are:

	Percent
Productive forest area	± 2.18
Unproductive forest area	± 6.38
Total cubic-foot volume	± 3.35
Total board-foot volume	± 4.15

The Black Hills and Custer National Forests, sampled as separate entities, are not entirely included within the area reported so actual sampling errors are not available. However, individual National Forest accuracy requirements usually greatly exceed national minimum requirements. The sampling design used for these National Forests is generally similar to that used for the other lands in western South Dakota.

TERMINOLOGY

Forest type.--A classification of forest land based upon the species forming a plurality of live-tree stocking.

MAJOR LAND CLASSES:

Productive forest land.--Forest land producing or capable of producing crops of industrial wood (minimum 20 cubic feet per acre per year). However, some of this land may not be available for timber production, depending upon owner intent.

Unproductive forest land.--Forest land that is not capable of producing crops of industrial wood because of adverse site conditions.

Nonforest land.--Land that has never supported forests, and lands formerly forested where timber utilization is precluded by development for other uses.

Reserved forest land.--Forest land withdrawn from use for timber utilization because of statute or administrative regulation.

STAND-SIZE CLASSES:

Sawtimber stands.--Stands at least 16.7 percent stocked with growing stock trees, with half or more of total stocking in sawtimber or poletimber trees, and with sawtimber stocking at least equal to poletimber stocking.

Poletimber stands.--Stands at least 16.7 percent stocked with growing stock trees in which half or more is in poletimber and/or sawtimber trees, and with poletimber stocking exceeding that of sawtimber.

Sapling/seedling stands.--Stands at least 16.7 percent stocked with growing stock trees in which more than half the stocking is sapling and/or seedling.

Nonstocked areas.--Productive forest land less than 16.7 percent stocked with growing stock trees.

TREE SIZE CLASSES:

Seedlings.--Live trees less than 1.0 inch diameter breast height.

Saplings.--Trees 1.0 to 5.0 inches diameter breast height.

Poletimber trees.--Trees at least 5.0 inches diameter, but smaller than sawtimber size.

Sawtimber trees.--Trees at least 9.0 inches diameter breast height for softwoods and 11.0 inches diameter breast height for hardwoods.

CLASS OF TIMBER:

Growing stock trees.--All live noncull trees at least 5.0 inches diameter breast height.

VOLUME:

Net volume.--Gross volume less deductions for rot, sweep, or other defects affecting use for timber products.

Growing stock volume.--Net volume in cubic feet of live growing stock sawtimber trees and live poletimber trees from stump to a minimum 4.0-inch diameter top outside bark.

Sawtimber volume.--Net volume in International 1/4-inch rule board feet of live growing stock sawtimber trees.

OWNER CLASSES:

Ownership.--Property owned by one owner, regardless of the number of parcels in a specified area.

National Forest land.--Federal lands which have been legally designated as National Forest or purchase units, and other lands under the administration of the Forest Service, including experimental areas and Bankhead-Jones Title III lands.

Other public.--Lands owned by States, counties, local public agencies or municipalities, or lands leased to these governmental units for 50 years or more; all Federal lands other than National Forest lands; tribal lands held in fee by the Federal Government, but administered for Indian tribal groups, and Indian trust allotments.

Private.--Lands not owned or administered by public agencies.

Table 2.--Area of productive nonreserved forest land by county, forest type, and stand-size class, western South Dakota, 1974

County	Forest type	S T A N D - S I Z E C L A S S				Total
		Sawtimber	Poletimber	Sapling/ seedling	Nonstocked	
		----- Thousand acres -----				
Butte	Ponderosa pine	2.6	1.0	.2	--	3.8
	Spruce-fir	--	--	--	--	--
	Hardwoods	.9	.2	--	--	1.1
	Total	3.5	1.2	.2	--	4.9
Custer	Ponderosa pine	235.5	82.7	35.4	1.6	355.2
	Spruce-fir	3.6	--	--	--	3.6
	Hardwoods	.9	.1	.1	--	1.1
	Total	240.0	82.8	35.5	1.6	359.9
Fall River	Ponderosa pine	30.7	13.0	8.5	4.9	57.1
	Spruce-fir	.2	--	--	--	.2
	Hardwoods	--	--	--	--	--
	Total	30.9	13.0	8.5	4.9	57.3
Harding	Ponderosa pine	7.7	5.4	2.1	(¹)	15.2
	Spruce-fir	--	--	--	--	--
	Hardwoods	.8	.2	.1	--	1.1
	Total	8.5	5.6	2.2	(¹)	16.3
Lawrence	Ponderosa pine	204.6	67.0	13.1	1.2	285.9
	Spruce-fir	12.7	--	--	--	12.7
	Hardwoods	25.8	4.1	4.2	--	34.1
	Total	243.1	71.1	17.3	1.2	332.7
Meade	Ponderosa pine	30.7	21.2	3.7	.1	55.7
	Spruce-fir	.3	--	--	--	.3
	Hardwoods	3.9	.9	.6	--	5.4
	Total	34.9	22.1	4.3	.1	61.4
Pennington	Ponderosa pine	268.4	106.4	17.1	.7	392.6
	Spruce-fir	7.4	--	--	--	7.4
	Hardwoods	4.5	1.4	.6	--	6.5
	Total	280.3	107.8	17.7	.7	406.5
All counties	Ponderosa pine	780.2	296.7	80.1	8.5	1,165.5
	Spruce-fir	24.2	--	--	--	24.2
	Hardwoods	36.8	6.9	5.6	--	49.3
	Total	841.2	303.6	85.7	8.5	1,239.0

¹ Less than 50 acres.

Table 3.--Area of productive nonreserved forest land by county, ownership class, and forest type, western South Dakota, 1974

County	Ownership class	F O R E S T T Y P E			
		Ponderosa	Spruce-fir	Hardwood	Total
		pine			
----- Thousand acres -----					
Butte	Natl. Forest	--	--	--	--
	Other public	--	--	(1)	(1)
	Private	3.8	--	1.1	4.9
	Total	3.8	--	1.1	4.9
Custer	Natl. Forest	255.9	3.6	.5	260.0
	Other public	56.5	--	.1	56.6
	Private	42.8	--	.5	43.3
	Total	355.2	3.6	1.1	359.9
Fall River	Natl. Forest	19.1	.2	--	19.3
	Other public	3.8	--	--	3.8
	Private	34.2	--	--	34.2
	Total	57.1	.2	--	57.3
Harding	Natl. Forest	10.4	--	--	10.4
	Other public	3.7	--	.8	4.5
	Private	1.1	--	.3	1.4
	Total	15.2	--	1.1	16.3
Lawrence	Natl. Forest	238.1	7.3	11.7	257.1
	Other public	6.3	.7	2.6	9.6
	Private	41.5	4.7	19.8	66.0
	Total	285.9	12.7	34.1	332.7
Meade	Natl. Forest	32.5	.3	.7	33.5
	Other public	1.5	--	.3	1.8
	Private	21.7	--	4.4	26.1
	Total	55.7	.3	5.4	61.4
Pennington	Natl. Forest	351.0	6.9	6.5	364.4
	Other public	2.6	(1)	--	2.6
	Private	39.0	.5	--	39.5
	Total	392.6	7.4	6.5	406.5
All counties	Natl. Forest	907.0	18.3	19.4	944.7
	Other public	74.4	.7	3.8	78.9
	Private	184.1	5.2	26.1	215.4
	Total	1,165.5	24.2	49.3	1,239.0

¹Less than 50 acres.

Table 4.--Area of productive nonreserved forest land by county, ownership class, and stand-size class, western South Dakota, 1974

County	Ownership class	S T A N D - S I Z E C L A S S				Total
		Sawtimber	Poletimber	Sapling/ seedling	Nonstocked	
		----- Thousand acres -----				
Butte	Natl. Forest	--	--	--	--	--
	Other public	(1)	--	--	--	(1)
	Private	3.5	1.2	.2	--	4.9
	Total	3.5	1.2	.2	--	4.9
Custer	Natl. Forest	185.7	64.9	9.4	(1)	260.0
	Other public	36.0	6.6	12.9	1.1	56.6
	Private	18.3	11.3	13.2	.5	43.3
	Total	240.0	82.8	35.5	1.6	359.9
Fall River	Natl. Forest	13.2	5.5	.6	--	19.3
	Other public	1.8	.7	.8	.5	3.8
	Private	15.9	6.8	7.1	4.4	34.2
	Total	30.9	13.0	8.5	4.9	57.3
Harding	Natl. Forest	5.2	3.5	1.7	(1)	10.4
	Other public	2.4	1.7	.4	--	4.5
	Private	.9	.4	.1	--	1.4
	Total	8.5	5.6	2.2	(1)	16.3
Lawrence	Natl. Forest	185.2	60.5	10.2	1.2	257.1
	Other public	7.3	1.4	.9	--	9.6
	Private	50.6	9.2	6.2	--	66.0
	Total	243.1	71.1	17.3	1.2	332.7
Meade	Natl. Forest	20.9	11.0	1.5	.1	33.5
	Other public	.8	.8	.2	--	1.8
	Private	13.2	10.3	2.6	--	26.1
	Total	34.9	22.1	4.3	.1	61.4
Pennington	Natl. Forest	259.1	90.9	13.7	.7	364.4
	Other public	1.2	1.2	.2	--	2.6
	Private	20.0	15.7	3.8	--	39.5
	Total	280.3	107.8	17.7	.7	406.5
All counties	Natl. Forest	669.3	236.3	37.1	2.0	944.7
	Other public	49.5	12.4	15.4	1.6	78.9
	Private	122.4	54.9	33.2	4.9	215.4
	Total	841.2	303.6	85.7	8.5	1,239.0

¹Less than 50 acres.

Table 5.--Area of productive reserved and unproductive reserved and nonreserved forest land by county, ownership class, and forest type, western South Dakota, 1974

County	Ownership class	F O R E S T T Y P E				Total
		Ponderosa:	Spruce-	Other	Hardwood	
		pine	fir	softwoods:		
- - - - - Thousand acres - - - - -						
Butte	Natl. Forest	--	--	--	--	--
	Other public	--	--	--	.3	.3
	Private	.8	--	.4	5.9	7.1
	Total	.8	--	.4	6.2	7.4
Custer	Natl. Forest	10.7	--	--	--	10.7
	Other public	10.3	.2	.1	.1	10.7
	Private	10.4	--	2.1	2.2	14.7
	Total	31.4	.2	2.2	2.3	36.1
Fall River	Natl. Forest	8.7	--	--	--	8.7
	Other public	2.0	--	.2	.4	2.6
	Private	18.0	--	2.5	4.0	24.5
	Total	28.7	--	2.7	4.4	35.8
Harding	Natl. Forest	1.3	--	--	--	1.3
	Other public	.5	--	.3	.6	1.4
	Private	.2	--	.1	1.0	1.3
	Total	2.0	--	.4	1.6	4.0
Lawrence	Natl. Forest	3.2	--	--	--	3.2
	Other public	.3	--	.1	.9	1.3
	Private	2.6	--	.9	8.9	12.4
	Total	6.1	--	1.0	9.8	16.9
Meade	Natl. Forest	.4	--	--	--	.4
	Other public	.1	--	--	.3	.4
	Private	1.3	--	1.5	5.4	8.2
	Total	1.8	--	1.5	5.7	9.0
Pennington	Natl. Forest	5.7	--	--	--	5.7
	Other public	1.0	--	--	.6	1.6
	Private	.4	--	--	3.3	3.7
	Total	7.1	--	--	3.9	11.0
All counties	Natl. Forest	30.0	--	--	--	30.0
	Other public	14.2	.2	.7	3.2	18.3
	Private	33.7	--	7.5	30.7	71.9
	Total	77.9	.2	8.2	33.9	120.2

Table 6.--*Net volume of growing stock on productive nonreserved forest land by county and species, western South Dakota, 1974*

County	S O F T W O O D S			H A R D W O O D S				Total
	Ponderosa	White	Total	Aspen	Cottonwood	Other	Total	all
	pine	spruce ¹	softwoods			hardwoods	hardwoods	species
----- Thousand cubic feet -----								
Butte	3,049	--	3,049	7	572	220	799	3,848
Custer	423,651	9,933	433,584	734	--	666	1,400	434,984
Fall River	40,502	527	41,029	33	--	72	105	41,134
Harding	5,971	--	5,971	6	71	170	247	6,218
Lawrence	448,895	30,626	479,521	5,082	--	3,499	8,581	488,102
Meade	70,900	970	71,870	188	405	862	1,455	73,325
Pennington	561,666	19,081	580,747	2,285	--	1,345	3,630	584,377
All counties	1,554,634	61,137	1,615,771	8,335	1,048	6,834	16,217	1,631,988

¹May include Engelmann spruce.

Table 7.--*Net volume of sawtimber on productive nonreserved forest land by county and species, western South Dakota, 1974*

County	S O F T W O O D S			H A R D W O O D S				Total
	Ponderosa	White	Total	Aspen	Cottonwood	Other	Total	all
	pine	spruce ¹	softwoods			hardwoods	hardwoods	species
----- Thousand board feet ² -----								
Butte	9,531	--	9,531	--	2,930	592	3,522	13,053
Custer	1,450,097	43,730	1,493,827	18	--	465	483	1,494,310
Fall River	120,182	2,205	122,387	--	--	206	206	122,593
Harding	14,115	--	14,115	--	365	327	692	14,807
Lawrence	1,593,241	122,614	1,715,855	920	--	5,594	6,514	1,722,369
Meade	213,127	3,994	217,121	12	2,078	1,421	3,511	220,632
Pennington	1,900,458	84,772	1,985,230	505	--	2,847	3,352	1,988,582
All counties	5,300,751	257,315	5,558,066	1,455	5,373	11,452	18,280	5,576,346

¹May include Engelmann Spruce.

²International 1/4-inch rule.

Table 8.--Net volume of growing stock on productive nonreserved forest land by county, forest type, and stand-size class, western South Dakota, 1974

County	Forest type	S T A N D - S I Z E C L A S S				
		Sawtimber	Poletimber	Sapling/ seedling	Nonstocked	Total
		----- Thousand cubic feet -----				
Butte	Ponderosa pine	2,166	504	40	--	2,710
	Spruce-fir	--	--	--	--	--
	Hardwoods	1,049	89	--	--	1,138
	Total	3,215	593	40	--	3,848
Custer	Ponderosa pine	334,305	79,962	11,652	276	426,195
	Spruce-fir	8,144	--	--	--	8,144
	Hardwoods	613	26	6	--	645
	Total	343,062	79,988	11,658	276	434,984
Fall River	Ponderosa pine	27,731	9,671	2,986	310	40,698
	Spruce-fir	436	--	--	--	436
	Hardwoods	--	--	--	--	--
	Total	28,167	9,671	2,986	310	41,134
Harding	Ponderosa pine	3,487	1,363	607	--	5,457
	Spruce-fir	--	--	--	--	--
	Hardwoods	562	180	19	--	761
	Total	4,049	1,543	626	--	6,218
Lawrence	Ponderosa pine	351,649	79,651	1,712	--	433,012
	Spruce-fir	25,617	--	--	--	25,617
	Hardwoods	26,189	1,960	1,324	--	29,473
	Total	403,455	81,611	3,036	--	488,102
Meade	Ponderosa pine	47,021	20,694	752	--	68,467
	Spruce-fir	613	--	--	--	613
	Hardwoods	3,074	1,013	158	--	4,245
	Total	50,708	21,707	910	--	73,325
Pennington	Ponderosa pine	444,689	117,552	3,463	--	565,704
	Spruce-fir	15,547	--	--	--	15,547
	Hardwoods	2,628	412	86	--	3,126
	Total	462,864	117,964	3,549	--	584,377
All counties	Ponderosa pine	1,211,048	309,397	21,212	586	1,542,243
	Spruce-fir	50,357	--	--	--	50,357
	Hardwoods	34,115	3,680	1,593	--	39,388
	Total	1,295,520	313,077	22,805	586	1,631,988

Table 9.--*Net volume of sawtimber on productive nonreserved forest land by county, forest type, and stand-size class, western South Dakota, 1974*

County	Forest type	S T A N D - S I Z E C L A S S				
		Sawtimber	Poletimber	Sapling/ seedling	Nonstocked	Total
		- - - - - Thousand board feet ¹ - - - - -				
Butte	Ponderosa pine	7,510	734	78	--	8,322
	Spruce-fir	--	--	--	--	--
	Hardwoods	4,510	221	--	--	4,731
	Total	12,020	955	78	--	13,053
Custer	Ponderosa pine	1,271,289	139,360	40,402	700	1,451,751
	Spruce-fir	39,878	--	--	--	39,878
	Hardwoods	2,660	11	10	--	2,681
	Total	1,313,827	139,371	40,412	700	1,494,310
Fall River	Ponderosa pine	95,595	15,659	8,884	554	120,692
	Spruce-fir	1,901	--	--	--	1,901
	Hardwoods	--	--	--	--	--
	Total	97,496	15,659	8,884	554	122,593
Harding	Ponderosa pine	9,598	1,971	926	--	12,495
	Spruce-fir	--	--	--	--	--
	Hardwoods	1,912	374	26	--	2,312
	Total	11,510	2,345	952	--	14,807
Lawrence	Ponderosa pine	1,368,473	136,861	5,328	--	1,510,662
	Spruce-fir	109,547	--	--	--	109,547
	Hardwoods	97,431	1,349	3,380	--	102,160
	Total	1,575,451	138,210	8,708	--	1,722,369
Meade	Ponderosa pine	170,944	33,101	1,202	--	205,247
	Spruce-fir	2,852	--	--	--	2,852
	Hardwoods	10,477	1,834	222	--	12,533
	Total	184,273	34,935	1,424	--	220,632
Pennington	Ponderosa pine	1,692,695	201,813	9,245	--	1,903,753
	Spruce-fir	75,995	--	--	--	75,995
	Hardwoods	8,521	168	145	--	8,834
	Total	1,777,211	201,981	9,390	--	1,988,582
All counties	Ponderosa pine	4,616,104	529,499	66,065	1,254	5,212,922
	Spruce-fir	230,173	--	--	--	230,173
	Hardwoods	125,511	3,957	3,783	--	133,251
	Total	4,971,788	533,456	69,848	1,254	5,576,346

¹International 1/4-inch rule.

Table 10.--*Net volume of growing stock on productive nonreserved forest land by county and ownership class, western South Dakota, 1974*

County	:	O W N E R S H I P						C L A S S		
	:	National	:	Other public			:	Private	:	Total
	:	Forest	:				:		:	all owners
- - - - - Thousand cubic feet - - - - -										
Butte		--				41		3,807		3,848
Custer		353,504				56,226		25,254		434,984
Fall River		22,941				1,818		16,375		41,134
Harding		2,000				3,214		1,004		6,218
Lawrence		376,998				14,187		96,917		488,102
Meade		50,781				1,376		21,168		73,325
Pennington		536,571				2,799		45,007		584,377
All counties		1,342,795				79,661		209,532		1,631,988

Table 11.--*Net volume of sawtimber on productive nonreserved forest land by county and ownership class, western South Dakota, 1974*

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Table 11.--*Net volume of sawtimber on productive nonreserved forest land by county and ownership class, western South Dakota, 1974*

AUG 23 '76

PROCUREMENT SEARCH
CURRENT SERIAL RECORDS

County	O W N E R S H I P			C L A S S	
	National Forest	Other public	Private	Total all owners	
- - - - - Thousand board feet ¹ - - - - -					
Butte	--	197	12,856	13,053	
Custer	1,231,557	197,343	65,410	1,494,310	
Fall River	73,844	5,000	43,749	122,593	
Harding	3,069	8,601	3,137	14,807	
Lawrence	1,329,627	49,132	343,610	1,722,369	
Meade	158,816	3,498	58,318	220,632	
Pennington	1,862,179	6,951	119,452	1,988,582	
All counties	4,659,092	270,722	646,532	5,576,346	

¹International 1/4-inch rule.